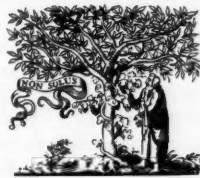


Remote Sensing of Environment

An Interdisciplinary Journal

Published

by American Elsevier Publishing Company, Inc.



Volume 2, 1971-1973

Remote Sensing of Environment

AN INTERDISCIPLINARY JOURNAL

Editor-in-Chief: **George J. Zissis**, Environmental Research Institute of Michigan, P.O. Box 618, Ann Arbor, Michigan 48107 U.S.A.

Associate Editors: **Marvin R. Holter**, Environmental Research Institute of Michigan

David Landgrebe, Purdue University

David S. Simonett, Earth Satellite Corporation, Washington, D.C.

Gwynn H. Suits, University of Michigan

Editorial Board: **Robert N. Colwell**, University of California at Berkeley, **and Philip Johnson**, Division Director, Environmental Systems and Resources, National Science Foundation (AGRICULTURE, FORESTRY AND ECOLOGY); **Edward M. Risley**, EROS Program, U.S. Geological Survey, **and Dieter Steiner**, University of Waterloo, Canada (GEOGRAPHY AND CARTOGRAPHY); **William A. Fisher**, EROS Program Manager, U.S. Department of Interior, **and Ronald J. P. Lyon**, Department of Geology, Stanford University, Stanford, California (GEOLOGY AND MINERAL RESOURCES); **Harold Yates**, National Oceanic and Atmospheric Administration, Director, Satellite Experiment Laboratory, National Environmental Satellite Service, Suitland, Md., **and Freeman F. Hall, Jr.**, National Oceanic and Atmospheric Administration, Boulder, Co. (ATMOSPHERIC SCIENCES); **Willard J. Pierson**, New York University, **S. Quimby Duntley**, University of California at San Diego, Scripps Institute of Oceanography, **Peter C. Badgley**, Office of Naval Research, Washington, D.C., **and Paul Bock**, University of Connecticut (OCEANOGRAPHY, HYDROLOGY, WATER AND MARINE RESOURCES); **Amron H. Katz**, Consultant, Los Angeles, California, **and Richard K. Moore**, University of Kansas (REMOTE SENSOR TECHNOLOGY AND DATA PROCESSING)

© American Elsevier Publishing Company, Inc., 1973. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

Remote Sensing of Environment

Volume 2, 1971-1973

Contents

Editorials	iii
VINCENT V. SALOMONSON (Greenbelt, Maryland) and WILLIAM E. MARLATT (Fort Collins, Colorado) Airborne Measurements of Reflected Solar Radiation	1
SUSAN A. ALDRICH, FRANK T. ALDRICH, and ROBERT D. RUDD (Corvallis, Oregon) An Effort to Identify the Canadian Forest-Tundra Ecotone Signature on Weather Satellite Imagery	9
WILLIAM G. BROONER and DAVID S. SIMONETT (Lawrence, Kansas) Crop Discrimination with Color Infrared Photography: A Study in Douglas County, Kansas..	21
M. C. THOMPSON (Boulder, Colorado) A Radio-Optical Dispersometer for Studies of Atmospheric Water Vapor	37
ROBERT D. KETCHUM, JR. (Washington, D.C.) Airborne Laser Profiling of the Arctic Pack Ice	41
PAUL E. ANUTA and ROBERT B. MACDONALD (Lafayette, Indiana) Crop Surveys from Multiband Satellite Photography Using Digital Techniques	53
Editorial	69
K.-H. SZEKIELDA AND W. F. MITCHELL, LCDR, USN (Greenbelt, Maryland) Oceanographic Applications of Color-enhanced Satellite Imageries	71
BEVERLY S. AUSMUS and JAMES W. HILTY (Knoxville, Tennessee) Reflectance Studies of Healthy, Maize Dwarf Mosaic Virus-Infected, and <i>Helminthosporium maydis</i> -Infected Corn Leaves	77
THERESA FLYNN SCHWARZER, BEVERLY GATLIN COOK, and JOHN A. S. ADAMS (Houston, Texas) Low Altitude Gamma-Spectrometric Surveys from Helicopters in Puerto Rico as an Example of the Remote Sensing of Thorium, Uranium, and Potassium in Soils and Rocks	83
ROBERT D. WATSON (Denver, Colorado) Spectral Reflectance and Photometric Properties of Selected Rocks	95
R. G. STRAUCH, V. E. DERR, and R. E. CUPP (Boulder, Colorado) Atmospheric Water Vapor Measurement by Raman Lidar	101
GEORGE A. MAUL and DONALD V. HANSEN (Miami, Florida) An Observation of the Gulf Stream Surface Front Structure by Ship, Aircraft, and Satellite.....	109
GWYNN H. SUITS (Ann Arbor, Michigan) The Calculation of the Directional Reflectance of a Vegetative Canopy	117

Editorial	127
T. WILHEIT, W. NORDBERG, J. BLINN, W. CAMPBELL, and A. EDGERTON (Greenbelt, Maryland) Aircraft Measurements of Microwave Emission from Arctic Sea Ice	129
JOHN E. ESTES and LESLIE W. SENGER (Santa Barbara, California) The Multispectral Concept as Applied to Marine Oil Spills.....	141
GEORGE A. MAUL and MIRIAM SIDRAN (Miami, Florida) Comment on "Estimation of Sea Surface Temperature from Space".....	165
D. ANDING and R. KAUTH (Ann Arbor, Michigan) Reply to the Comment by G. A. Maul and M. Sidran	171
GWYNN H. SUITS (Ann Arbor, Michigan) The Cause of Azimuthal Variations in Directional Reflectance on Vegetative Canopies.....	175
✓ GWYNN H. SUITS (Ann Arbor, Michigan) and G. R. SAFIR (East Lansing, Michigan) Verification of a Reflectance Model for Mature Corn with Applications to Corn Blight Detection	183
MICHAEL P. WEINREB and DAVID S. CROSBY (Washington, D.C.) Optimization of Spectral Intervals for Remote Sensing of Atmospheric Temperature Profiles..	193
Editorial	203
V. KLEMAS, J. F. BORCHARDT, and W. M. TREASURE (Newark, Delaware) Suspended Sediment Observations from ERTS-1	205
RUSSELL B. CHADWICK and C. GORDON LITTLE (Boulder, Colorado) The Comparison of Sensitivities of Atmospheric Echo-Sounders	223
✓ DENNIS CONWAY and ROBERT K. HOLZ (Austin, Texas) Use of the Near-Infrared Photography in the Analysis of Surface Morphology of an Argentine Alluvial Floodplain	235
✓ C. M. R. PLATT and A. J. TROUP (Aspendale, Victoria, Australia) A Direct Comparison of Satellite and Aircraft Infrared (10 μ m-12 μ m) Remote Measurements of Surface Temperature	243
✓ GARY C. THOMANN (Bay St. Louis, Mississippi) Remote Measurement of Salinity in an Estuarine Environment.....	249
S. G. TOOMA, JR. and W. B. TUCKER (Washington, D.C.) Statistical Comparison of Airborne Laser and Stereophotogrammetric Sea Ice Profiles	261
K. YA. KONDRADEV, O. B. VASSILYEV, A. A. GRIGORYEV, and G. A. IVANIAN (Leningrad, USSR) An Analysis of the Earth's Resources Satellite (ERTS-1) Data.....	273
Book Review	
G. J. ZISSIS <i>The Surveillance Science: Remote Sensing of the Environment</i> , edited by R. K. Holz.....	285
Author Index to Volume 2	287
Title Index to Volume 2	289

